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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/664,472	09/16/2003	Steven A. Buhler	D/A2559Q2	4344

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Patent Documentation Center  
Xerox Corporation  
Xerox Square 20th Floor  
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Rochester, NY 14644

EXAMINER
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ADDISON, KAREN B

ART UNIT	PAPER NUMBER
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2834

DATE MAILED: 12/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/664,472

Applicant(s)

BUHLER ET AL.

Examiner

Karen B Addison

Art Unit

2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 21 is/are allowed.
- 6) ☒ Claim(s) 1-8, 10-11 and 20 is/are rejected.
- 7) ☐ Claim(s) 9 and 12-19 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 60/433,515.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims are 1,2,4,7,8,10,11 rejected under 35 U.S.C. 102(b) as being anticipated by Takashi(6257700).

Takashi disclose a piezoelectric transducer in fig. 38 comprising: A piezoelectric transducer comprising: a chamber diaphragm(122) having first and second opposing surfaces, a given chamber diaphragm thickness, and a given chamber diaphragm width, a mesa(149) having first and second opposing surfaces, a given mesa thickness, and a given mesa width wherein, the first surface of the mesa is adjacent to the first surface of the chamber diaphragm(122), and a piezoelectric material element(123b) having a given piezoelectric material element width adjacent to the second surface of the mesa(149). Wherein, the mesa further comprises an insulative layer(epoxy) at least partially on the second surface of the mesa. Takashi also discloses the chamber made of a substantially non-conductive material wherein, the mesa thickness is at least 10% of the chamber diaphragm thickness fig.38, and the piezoelectric material element(123b) width is greater than the chamber diaphragm width(122).

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 3,5,6 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takashi (as seen above) in view of Takeuchi (6476336).

Takashi substantially discloses the claim invention. However, Takashi do not disclose an electrical contact layer partially interposed between the piezoelectric material element and the second surface of the mesa. Takashi also do not disclose the mesa comprising a substantially conductive material, a chamber diaphragm comprising a substantially conductive material and the electrically contact layer interposed between the chamber diaphragm and the mesa.

Takeuchi discloses an Piezoelectric element infig 1 -22 comprising: an actuator (1b) having an electrical contact layer(10b) partially interposed between the piezoelectric material element(3b) and the second surface of the mesa(9b). Wherein, the mesa comprise a substantially conductive material(8b), a chamber diaphragm(7) comprises a substantially conductive material(aluminum) and the electrically contact layer interposed between the chamber diaphragm(8b) and the mesa(9b) for the purpose of driving the actuator (col.8 line 53). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the actuator of Takashi with

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the electrical connection of Takeuchi for the purpose of providing a current controlling element which is capable of reducing the cost and the power consumption.

***Allowable Subject Matter***

5. Claim 9,12-19 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. Prior art fails to show, a second piezoelectric material element having a second piezoelectric material element width adjacent to the second surface of the chamber diaphragm. Prior art also fails to show a second mesa having first and second opposing surfaces, a given second mesa thickness, and a given second mesa width interposed between the second piezoelectric material element and the second surface of the chamber diaphragm. Prior art also fails to show the width of the mesa is less than the width of the chamber diaphragm.

Claim 21 is allowed.

Prior art also fails to show, a first and second piezoelectric material elements, each element having a given piezoelectric material element width wherein the first piezoelectric element is adjacent to the second surface of the mesa and the second piezoelectric element is adjacent to second surface of the chamber diaphragm.

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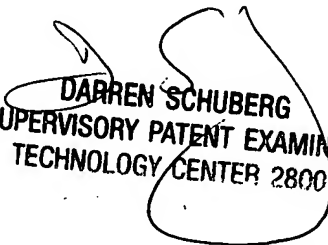
***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karen B Addison whose telephone number is 571-272-2017. The examiner can normally be reached on 8:00 to 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberg can be reached on 571-272-2044. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KBA  
11/22/04

  
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